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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,285	09/26/2003	Toshihiro Kobayashi	00862.023247	1359
5514	7590	07/01/2005	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			SHAH, KAMINI S	
			ART UNIT	PAPER NUMBER
			2142	

DATE MAILED: 07/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/670,285	Applicant(s) KOBAYASHI ET AL.	
	Examiner Kamini S. Shah	Art Unit 2142	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 January 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 and 10-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 6-14 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

*TL*

***Response to Arguments***

1. Applicant's arguments with respect to claims 1-8 rejected under 102(e) as being anticipated by State et al have been considered but are moot in view of the new ground(s) of rejection.
2. Applicant's arguments filed 1/10/05 have been fully considered but they are not persuasive. Regarding to claims 1, 5, and 7 provisionally rejected for obviousness-type double patenting, as being unpatentable over claims 1 and 17 of copending application no. 10/351,326, applicant argues that claims at co-pending application fails to disclose capturing the transmitter of the sensor at or nearly at the center of the captured image. However, claims at the present application are rejected under 112 first paragraph for specification not providing the scope of enablement as discussed herein below.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1, 5, and 7 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for acquiring the measured value of the sensor when an image of transmitter, is captured by a image sensing device (i.e., The image coordinate acquisition unit 112 specifies the coordinate position and identification information of a marker which appears in an image (to be referred to as a real image hereinafter) which is sensed by the image sensing device 302 (Fig. 1) and is captured by the image captured device 107 (Fig. 1){emphasis added}, page 18, lines 9-14), but,

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does not reasonably provide enablement for an image of the transmitter, placed in a real space, is captured at or nearly at the center of a captured image. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to sensor comprises a transmitter and a receiver, the image captured by the image sensing unit to which receiver is attached the invention commensurate in scope with these claims. The specification does not contain clear written description of the claimed features, mainly, a relationship of the positions of the image sensing unit and the transmitter as defined.

### ***Double Patenting***

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1,5,7 and 9 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 17 of copending Application No. 10/351,326. . Although the conflicting claims are not identical, they are not patentably distinct from each other because as follows.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

A position and orientation of an image sensing unit comprising a method for identifying a parameter (a first parameter), acquiring the measured value of the sensor upon adjusting the position and orientation of the image sensing unit to capture an image of transmitter of the sensor in a real space (such as correcting first parameter obtained at said measurement step based on said plural feature points in a video image of said actual space obtained by said measurement unit), and calculating said first parameter using the measured value of the sensor (such as obtaining a first parameter indicating the position and orientation of said image sensing means). The only difference between claims is that claim in present application omits additional features such as first parameter is corrected by rotating of said image sensing means. However the omission of limitation in the present application is an obvious expedient to the one of the ordinary skill in the art and the remaining elements performs the same function as before. In re Karlson, 136 USPQ 184 (CCPA 1963). Also note Ex parte Rainu, 168 USPQ 375 (Bd. Apo. 1969). Omission of a reference element whose function is not needed would be obvious to one of the ordinary skill in the art.

### ***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

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applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1,5,7 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Takemoto et al 2003/0144813 (herein after 'Takemoto et al)

The applied reference has a common assignee with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding to claimed invention, Takemoto et al teaches a method for calculating a first parameter used to transform a measured value of a sensor into a position and orientation of an image sensing unit (such as a position and orientation determination apparatus for identifying a parameter indicating the position and orientation of image sensing apparatus which performs image sensing on actual space, see abstract lines 1-3) comprising: acquiring measured value of the sensor upon adjusting the position and orientation of the image sensing unit, and calculating first parameter using the measured value of sensor ( such as the first parameter is corrected by rotation of the image sensing means about a visual axis, based on plural feature points in the video image, see abstract and col. 1, paragraph 0008).

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3,5-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Andrei State et al, "Superior Augmented Reality Registration by Integrating Landmark Tracking and Magnetic Tracking", Proc. SIGGRAPH, 96, July 1996 pg 429-438.

Regarding claimed invention (claims 1,5,7), State et al teaches a method for calculating a first parameter used to transform a measured value of a sensor into a position and orientation of an image sensing unit (such as in the System Overview section # 5 discloses the hybrid tracker analyzer sensor for two type of input data: a real-time video images from stereo cameras, and tracking reports from the magnetic tracking sensor, and Head pose will refer to the position and orientation of HDM-cameras-sensor assembly; and calculating first parameter using measured value of the sensor ( such as hybrid tracker attempts to determine the head pose from the landmark's positions in the images, section 5.1). Additionally, see section 6.6.2 Image Analyzer, wherein State discloses image area to be a search area defined by landmark predictor, where it discloses the center of the mass of the inner of the dot is taken as the center of the landmark.

Regarding dependent claims 2-3, 6, 8, State et al discloses in various figures a superimposed virtual image of the transmitter on a captured image on the basis of the calculated first parameter, and updating the virtual image in accordance with the adjustment value, see figures 7-10 and section 9.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over State et al "Superior Augmented reality registration by integrating landmark tracking and magnetic tracking" and in view of applicant's own disclosure on pages 1-5.

Regarding claims 10-14, State et la teaches the method including acquiring the measured value of the sensor upon adjusting the position and orientation of the image sensing unit to capture an image of the transmitter in a real space, (such as in the System Overview section # 5 discloses the hybrid tracker analyzer sensor for two type of input data: a real-time video images from stereo cameras, and tracking reports from the magnetic tracking sensor, and Head pose will refer to the position and orientation of



HDM-cameras-sensor assembly, in the field of augmented reality in real world); calculating the first parameter using the measured value ( such as hybrid tracker attempts to determine the head pose from the landmark's positions in the images, section 5.1).

State does not disclose the superimposing a virtual image of the transmitter on the captured image on the basis of the calculated parameter. However, it is obvious to skilled artisan in the environment that captured images for the head mounted cameras in real-time are transferred to graphics frame by superimposing an image of a virtual space because as advantage of vision-based tracking system, when applied to video-see-through AR, uses the very same image on which synthetic objects are overlaid. Applicant in the own disclosure, in the background of invention discloses the same. Therefore, for these reasons, it would have been obvious to one of the ordinary skill in the art at the time of invention to utilize known superimposing a virtual image to come up with the claimed invention.

#### ***Allowable Subject Matter***

12. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kamini S. Shah whose telephone number is 571-272-2279. The examiner can normally be reached on IFP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew B. Caldwell can be reached on 571-272-3868. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kamini S Shah  
Primary Examiner  
Art Unit 2142

KSS